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STATEMENT OF

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U. S. HOUSE OF REPRESENTATIVES

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"Cell Phones on Aircraft: Nuisance or Necessity"

Good morning Mr. Chairman and Members of the Aviation Subcommittee. I am David Watrous, President of RTCA, Inc. Thank you for the opportunity to appear before you today on the subject of Portable Electronic Devices (PEDs) – particularly cell phones and similar portable electronic devices.

Scope of Remarks

RTCA's work, and my remarks, will center on the potential for portable electronic devices … specifically PEDs that intentionally transmit signals … to interfere with the safe operation of aircraft electronics. Some Portable Electronic Devices also have the potential to interfere with ground-based telecommunications. That aspect of Portable Electronic Device operation is primarily the domain of the FCC. FCC representatives are participating in our current PED analyses, however PED interference with ground based telecommunications has not been the focus of our work and therefore is not a subject on which I am prepared to speak.

Objective of RTCA's Current PED Work

From an aviation perspective, the airborne on-board use of cell phones and similar devices can be characterized as a trade off of safety versus convenience. Aviation safety is always paramount. That said, RTCA is working to find ways that cell phones can be safely operated on board aircraft that are in flight. The community has a concept for

achieving that objective. We're collecting test data and plan to have our recommendations available for FAA by December 2006.

RTCA Background

A few words about RTCA may be of value in setting the stage for my remarks.

RTCA is a not-for-profit corporation that was organized in 1935 to address aviation electronics issues. We are a utilized Federal Advisory Committee. Our deliberations are open to the public and our products are recommendations, developed by Special Committees of volunteers … mostly engineers … functioning in a collaborative, peer review type of environment. FAA uses our recommendations as a partial basis for the certification of avionics. Other government and private sector entities use our products when making a variety of aviation related decisions.

Aviation Safety and Portable Electronic Devices

As you know, safety is the primary consideration in civil aviation. US aviation has an absolutely outstanding safety record. That's extremely important … to the nation, to the passengers and shippers who use the system and to the aviation industry. We must sustain or improve on our record.

That said, portable electronic devices … especially those portable electronic devices that intentionally send out signals such as cell phones… have the potential to interfere with avionics. I'll illustrate the potential safety ramifications of PED interference in the context of aircraft radios used to navigate the plane.

Nature and Impact of Potential Interference

The risk from interference with navigation signals is highest when the plane is close to the ground … when it is taking off or landing in bad weather or whenever the pilots' visibility is limited. Events happen very fast when the aircraft is traveling at roughly 200 miles per hour and is a few hundred to a few thousand feet above the ground. In those circumstances, pilots totally depend on information from avionics … avionics that must accurately receive and process radio signals … to fly the aircraft and make a safe departure or landing.

All portable electronic devices have the potential to interfere with radio navigation signals, even though such interference is unintentional. The interference can prevent the reception of the radio signals or worse yet, can distort the signals. In the latter case, the pilot would think that he / she is flying the plane to a safe landing when in fact the corrupted signals could potentially be guiding the plane toward a nearby mountain, tower or building.

PED induced interference can also be a problem when aircraft are en route, well above the ground. However, in this scenario, pilots and controllers have more time to detect the

problem, to have all potential offending PED devices turned off or to pursue an alternate means of getting the aircraft safely on the ground.

RTCA Analyses of Potential PED Induced Interference

RTCA committees have addressed the potential of PED induced interference four times over the last four decades. On each occasion, the committee focused on the emerging consumer electronics technologies of their day.

During the middle 1960s, RTCA Special Committee 88 focused on early transistorized electronics … hearing aids, portable dictating and recording devices, portable radio and television receivers. During the late 1980s Special Committee 156 addressed potential interference from laptop computers, games, increasing numbers of AM and FM radio receivers and television receivers. By the mid 1990s, Special Committee 177 was looking at the potential interference from smaller, faster processors in laptop computers; games; AM, FM and television receivers; early cell phones; CD Players and the impact that they could have on newer avionics that make use of Global Positioning System (GPS) signals.

Each of these committees concluded that electronic devices, especially digital electronics, have the potential to emit radio frequency signals that, in turn, may interfere with sensitive aircraft communications, navigation and control systems. Thus their use onboard aircraft needs to be carefully controlled so that potential PED generated interference does not adversely impact the safety of aircraft operations.

There are two primary considerations attendant with potential PED induced interference; 1) the nature and relative power of the PED signal; 2) the design, production and use of PEDs.

An example may help illustrate the relative power consideration. Airplane satellite navigation receivers are designed to look for and work with the faint signals from far-away satellites. The signal from a passenger-carried electronic device, albeit transmitting a small signal but being transmitted much closer to the airplane navigation receiver, has the potential to overwhelm the desired satellite signal. In a similar vein, PED signals have the potential to corrupt navigation signals and lead to erroneous navigation information.

There are also fundamental differences in the design approval and use of avionics vis-à-vis portable electronic devices.

Avionics and flight control components, wiring, and systems are rigorously tested and qualified before they can be certified for aircraft installation and use. These items cannot be certified if they interfere with any systems needed to fly the airplane. The parts are manufactured in accordance with a documented and verifiable production process, then produced via a controlled process to assure the characteristics of each part meet aviation

certification standards. When installed, these items are operated by trained professional crews.

Portable Electronic Devices are not qualified to the same standards. Changes to production line processes can result in differing characteristics among otherwise similar units. Furthermore, PED users generally are not familiar with the operating parameters of their hand held device or the potential hazards of operating their PEDs when airborne.

RTCA's current PED activity

RTCA's current Special Committee, SC-202, is primarily focused on analyzing potential interference from PEDs that intentionally transmit signals. Cell phones are the most obvious type of transmitting PED and they are the center of the committee's work. Some PDAs can also function as cell phones and their potential to interfere with avionics will also be addressed.

Special Committee 202 is led by Mr. David Carson of the Boeing Company and Mr. James Fowler of US Airways. The committee includes approximately 150 members from essentially every segment of the aviation and consumer electronics communities: avionics manufacturers, aircraft manufacturers, airlines, aircraft operators, pilot and flight attendant associations, regulatory agencies, consumer electronic device manufacturers and related industry associations. The committee works closely with other industry groups such as the Consumer Electronics Association. Our committee's work is also coordinated closely with similar analyses on-going in Europe [EUROCAE Working Group 58]. Our Special Committee 202 is developing a consistent, common, documented process to:

- Assess the impacts that transmitting PEDs can have on the aircraft operation
- Develop strategies to mitigate identified potential interference, and
- Work with regulatory authorities to approve safe use of transmitting PEDs

Testing accomplished by the aviation industry has shown the potential for cell phones to cause interference to avionics. Through airplane testing and documented process validation, the committee is replacing anecdotal understanding with facts, data, and repeatable processes. Only when consistent, common and repeatable testing has been accomplished to identify interference potentials and corresponding mitigation steps completed, can the aviation community confidently permit the use of any type PED.

With the help of the FAA and FCC, our Special Committee is developing recommended acceptable and enforceable policies that maintain or improve aviation safety and accommodate the growing desire by passengers to use wireless technologies on the airplane.

Thank you for the opportunity to testify on this important and contemporary topic. I'd be pleased to address your questions.